

REMARKS

By this Amendment, Applicants amend claims 18, 19, 27, 29-30, 32-33, 38, 42-45 and 47.

Accordingly, claims 18-37, 42-45 and 47 remain pending.

Reexamination and reconsideration are respectfully requested in view of the following Remarks.

35 U.S.C. §§ 102 and 103

The Office Action rejects: claims 18-21, 23-26, 29-32, 34-35, 42, 44 and 47 under 35 U.S.C. § 102 over Williams et al. U.S. Patent 5,777,719 (“Williams”) and claims 22, 27-28, 33, 36-37 and 43 under 35 U.S.C. § 103 over Williams in view of Mihashi et al. U.S. Patent 6,042,233 (“Mihashi”).

Applicants respectfully submit that all of the pending claims are patentable over the cited art for at least the following reasons.

Claim 18

Among other things, the system of claim 18 includes a test structure located between the projecting optical system and the wavefront sensor, the test structure being adapted to receive the optically transmissive object.

The Office Action cites Williams and indicates that the eye under test in Williams supposedly corresponds to the optically transparent object. Without conceding that the eye in Williams is truly an optically transparent object, and to advance prosecution of this application, Applicants amend claim 1 to recite a test structure located between the projecting optical system and the wavefront sensor that is adapted to receive the optically transmissive object.

Williams neither discloses nor suggests any test structure located between a projecting optical system and a wavefront sensor that is adapted to receive an optically transmissive object whose optical characteristic is being measured.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 18 is patentable over Williams.

Claims 19-21 and 23-26

Claims 19-21 and 23-26 depend from claim 18 and are deemed patentable for at least the reasons set forth above with respect to claim 18, and for the following additional reasons.

Claim 23

Among other things, in the system of claim 23, the correction system includes at least one variable focal length lens.

The Office Action cites lens 122 of Williams.

Applicants respectfully submit that lens 122 does not have a variable focus length.

The cited text at col. 4 in Williams states that the lens may be moved.

Moving a lens does not clearly change its focal length.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 23 is patentable over Williams.

Claim 24

Among other things, the system of claim 24 includes a processor controlling the variable focal length lens.

At the outset, as noted with respect to claim 23 above, Applicants respectfully submit that Williams does not disclose any variable focal length lens. So, of course, it follows that Williams does not disclose any processor controlling any variable focal length lens.

Furthermore, the Office Action cited lens 122 as supposedly being a variable focus length lens. Again, as noted with respect to claim 23 above, Applicants respectfully submit that lens 122 is not a variable focal length lens. But even if it was, Williams does not disclose any processor that controls lens 122 – and in particular does not disclose this in the cited text at col. 4, line 64 – col. 5, line 11.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 24 is patentable over Williams.

Claim 26

Among other things, the system of claim 26 includes a telescope having

two lenses, at least one of said lenses being movable, and a processor adapted to move the movable lens to a plurality of positions and to stitch together the sensed wavefronts of the light received by the wavefront sensor at each of the positions.

Applicants respectfully submit that Williams does not disclose this combination of features, and in particular, does not disclose stitching together any wavefronts sensed with a movable lens at a plurality of positions.

Williams operates as a feedback system where a wavefront sensor measures an eye's aberration(s) and provides the measurement to a computer which generates therefrom a compensation signal to drive a deformable mirror to compensate for the measured aberration(s). Once the deformable mirror has the appropriate shape to provide the desired compensation for the eye's aberration(s), then the compensation signal can be used, e.g., to specify parameters for a contact lens which duplicates the mirror's compensation.

Williams does not move any lens to a plurality of positions and take measurements at each position.

Williams does not stitch together any wavefronts sensed with a movable lens at a plurality of positions.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 26 is patentable over Williams.

Claim 29

Among other things, the method of claim 29 includes projecting a light beam through an optically transmissive object from a first side of the optically transmissive object, collecting the light beam at a second side of the optically transmissive object opposite the first side, and providing the collected light to a wavefront sensor.

The Office Action cites Williams and indicates that the eye in Williams supposedly corresponds to the optically transparent object. Without conceding that the eye in Williams is truly an optically transparent object, and to advance prosecution of this application, Applicants respectfully submit that Williams does not disclose any method that includes projecting a light beam through an optically transmissive object from a first side of the optically transmissive object, and collecting the light beam at a

second side of the optically transmissive object opposite the first side.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 29 is patentable over Williams.

Claims 30-32 and 34-35

Claims 19-21 and 23-26 depend from claim 29 and are deemed patentable for at least the reasons set forth above with respect to claim 29, and for the following additional reasons.

Claim 32

Among other things, the method of claim 32 includes changing a compensation applied to the light beam; repeating steps to obtain N sensed wavefronts; and stitching together the N sensed wavefronts to map the object.

As explained above with respect to claim 26, Williams does not stitch together any sensed wavefronts. In particular, Applicants respectfully submit that absolutely nothing in the cited text at col. 5, line 27 – col. 6, line 27 discloses stitching together any sensed wavefronts.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 32 is patentable over Williams.

Claim 37

Among other things, the method of claim 37 includes passing the light beam through a telescope having two lenses, at least one of said lenses being movable, moving the movable lens to a plurality of positions, and stitching together the sensed wavefronts of the light received by the wavefront sensor at each of the positions.

As explained above with respect to claim 26, Williams does not move any lens to a plurality of positions and take measurements at each position, and Williams does not stitch together any wavefronts sensed with a movable lens at a plurality of positions.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 37 is patentable over Williams.

Claim 42

Among other things, the method of claim 42 includes making wavefront

measurements for a plurality of different portions of an optically transmissive object that together span a target area of the optically transmissive object; and stitching together the sensed wavefronts to produce a complete measurement of the target area of the optically transmissive object.

Applicants respectfully submit that Williams does not disclose any method including this combination of features. In particular, Williams does not stitch together any sensed wavefronts. And even more specifically, Applicants respectfully submit that absolutely nothing in the cited text at col. 5, line 27 – col. 6, line 27 discloses stitching together any sensed wavefronts.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 42 is patentable over Williams.

Claim 44

Claim 44 depends from claim 42 and is deemed patentable for at least the reasons set forth above with respect to claim 42, and for the following additional reasons.

Among other things, the method of claim 44 includes making a plurality of wavefront measurements for a plurality of different portions of the surface of the object by moving a movable lens to a plurality of different positions.

Applicants respectfully submit that Williams does not disclose this combination of features. In particular, Applicants respectfully submit that absolutely nothing in the cited text at col. 5, line 27 – col. 6, line 27 discloses making a plurality of wavefront measurements for a plurality of different portions of the surface of the object by moving a movable lens to a plurality of different positions.

Accordingly, for at least this additional reason, Applicants respectfully submit that claim 44 is patentable over Williams.

Claim 47

Among other things, the method of claim 47 includes sensing wavefronts at N different distances between the light source and the optically transmissive object, and stitching together the N sensed wavefronts to produce a complete measurement of the target area of the surface of the optically transmissive object.

Again the Office Action cites col. 4, line 64 – col. 5, line 11 and col. 5, line 27 – col. 6, line 27 of Williams.

Applicants respectfully submit that the cited text does not disclose sensing wavefronts at N different distances between the light source and the optically transmissive object. Applicants also respectfully submit that the cited text does not disclose stitching together any sensed wavefronts.

Accordingly, for at least these reasons, Applicants respectfully submit that claim 47 is patentable over Williams.

Claims 22, 27-28, 33, 36-37 and 43

Claims 22, 27-28, 33, 36-37 and 43 depend variously from claims 18, 29 and 42. Applicants respectfully submit that Mihashi does not remedy the shortcomings of Williams as set forth above with respect to claims 18, 29 and 42. Accordingly, Applicants respectfully submit that claims 22, 27-28, 33, 36-37 and 43 are patentable for at least the reasons set forth above with respect to claims 18, 29 and 42, and for the following additional reasons.

Claims 22, 27-28, 33, 36-37 and 43 each include a dynamic-range-limiting aperture adapted to insure that the wavefront sensor only sees light within a dynamic range of the wavefront sensor.

The Office Action fairly admits that Williams does not disclose or suggest any such dynamic-range-limiting aperture.

However, the Office Action states that Mihashi discloses such a dynamic-range-limiting aperture as diaphragm 202, and that it would have been obvious to have modified Williams to include such a dynamic-range-limiting aperture in order to reduce the influence of light reflected by the cornea on the measurement.

Applicants respectfully disagree. In particular, Applicants respectfully submit that Mihashi's diaphragm 202 is not a dynamic-range-limiting aperture, and it is not adapted to insure that a wavefront sensor only sees light within a dynamic range of the wavefront sensor.

At the outset, Applicants note that the Office Action cites absolutely nothing in Mihashi that discloses or suggests that diaphragm 202 is adapted to insure that a

wavefront sensor only sees light within its dynamic range. In particular, the text at col. 3, line 66 – col. 4, line 19 does not disclose this.

Furthermore, diaphragm 202 is not even in the optical path between the eye and the light converting member 400 / light receiving unit 500. The Office Action fails to explain how a diaphragm 202 that is not even in an optical path between an object under test and a wavefront sensor is supposed to insure that the wavefront sensor only sees light within a dynamic range of the wavefront sensor? This does not appear to make sense.

So no combination of Williams and Mihashi could ever produce the system of claim 22 or the methods of claims 27-28, 33, 36-37 and 43.

Furthermore, with respect to claims 27, 36 and 37, the dynamic-range-limiting aperture is disposed between in an optical path between two lenses that form a telescope. Mihashi's diaphragm 202 is not disposed in an optical path between two lenses that form a telescope.

Moreover, the methods of claims 33, 36 and 37 each include passing through the dynamic-range-limiting aperture a light beam that has been projected through an optically transmissive object. Again, Mihashi's diaphragm 202 is not even in an optical path between an object under test and a wavefront sensor, and so no light that has been projected through an optically transmissive object passes through diaphragm 202.

Finally, claim 37 recites stitching together a plurality of wavefronts sensed by a wavefront sensor at a plurality of different positions of a movable lens. As discussed above with respect to claims 26 and 42, Applicants respectfully submit that absolutely nothing in the cited text at col. 5, line 27 – col. 6, line 27 of Williams discloses stitching together any wavefronts sensed with a movable lens at a plurality of positions.

Accordingly, for at least these reasons, Applicants respectfully submit that claims 22, 27-28, 33, 36-37 and 43 are all patentable over the cited art.

CONCLUSION

In view of the foregoing explanations, Applicants respectfully request that the Examiner reconsider and reexamine the present application, allow claims 18-37, 42-45 and 47, and pass the application to issue. In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Kenneth D. Springer (Reg. No. 39,843) at (571) 283-0720 to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17, particularly extension of time fees.

Respectfully submitted,

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Date: 12 August 2008

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